CLAIMS

1. A method for the identification and investigation of a receptor in target tissue for which a selected vector has affinity, said method comprising:

   i) creating retroviral particles containing a library of mRNA from the target tissue;

   ii) transfecting a non-adherent cell line which does not bind with the selected vector by infecting the cells with said retroviral particles;

   iii) adding to the transfected cell line a suspension of encapsulated gas microbubbles to which the selected vector is coupled and allowing the microbubbles and cells coupled thereto to float to the surface of the suspension;

   iv) isolating the microbubble-bound cells at the surface;

   and either

   v-a) lysing the isolated cells, amplifying the receptor-encoding cDNA therefrom and sequencing said cDNA; and optionally

   v-b) comparing the thus-obtained sequence data with gene bank sequence data;

   or

   vi-a) culturing the isolated cells; and

   vi-b) investigating affinities of vectors to the isolated cells.

2. A method according to claim 1 wherein said vector is selected from peptides, proteins, antibodies, nucleotides, hormones, growth factors, cytokines, carbohydrates, lipids, therapeutic agents and drugs acting through receptor-mediated cell entry.

3. A method according to claim 1 or claim 2 wherein the

encapsulated microbubbles of step iii) are selected from microbubbles of gas stabilised by a coalescence-resistant surface membrane, a filmogenic protein, a polymer material, a lipid, a non-polymeric and non-polymerisable wall-forming material and a surfactant.

4. A method according to claim 3 wherein said surfactant is selected from one or more phospholipids and one or more lipopeptides.

5. A method according to any of claims 1 to 4 wherein said gas is a biocompatible gas or gas mixture selected from perfluorinated gases, preferably from sulphur hexafluoride, perfluoropropane, perfluorobutanes, perfluoropentanes and perflurohexanes.

6. A method according to any of claims 1 to 5 wherein said gas is perfluorobutane and said surfactant is phosphatidylserine.

7. A method according to any of claims 1 to 6 wherein the microbubbles are removed before or after culturing, said removal is effected by bursting with a technique selected from ultrasonication, pH change or transient application of overpressure or underpressure.

8. Microbubble-bound transfected cells producible by method steps i) to iv) of claim 1.

9. Microbubble-bound transfected cells according to claim 8 wherein the microbubbles are of similar size to the transfected cells, preferably the microbubbles have diameters of 1 to 10 um, more preferably 3 to 5 um.

10. Use of microbubble-bound cells according to claim 8 or claim 9 for the investigation of diseases involving said receptors.